CONTENTS

Number 1

Notice to Contributors

Root System Fibrosity of Sitka Spruce Transplants: Relationship with Root Growth Potential, J. D. DEANS, C. LUNDBERG, M. G. R. CANNELL, M. B. MURRAY and L. J. SHEPPARD 1

Sitka Spruce and Douglas Fir Seedlings in the Nursery and in Cold Storage: Root Growth Potential, Carbohydrate Content, Dormancy, Frost Hardiness and Mitotic Index, M. G. R. CANNELL, P. M. TABBUSH, J. D. DEANS, M. K. HOLLINGSWORTH, L. J. SHEPPARD, J. J. PHILIPSON and M. B. MURRAY 9

The Determination of Risk Adjusted Discount Rates for Private Sector Forestry Investment, D. G. MCKILLOP and R. W. HUTCHINSON 29

Variation of Density and Growth Ring Width in Stems of Sitka and Norway Spruce, J. A. PETTY, D. C. MACMILLAN and C. M. STEWARD 39

The Effects of Clearfelling a Sitka Spruce Stand on the Water Balance of a Peaty Gley Soil at Kershope Forest, Cumbria, A. R. ANDERSON, D. G. PYATT and J. P. STANNARD 51

A Root Anchorage Model for Shallowly Rooted Sitka Spruce, P. G. BLACKWELL, K. RENNOLLS and M. P. COUTTS 73

REVIEWS

C. R. SILVERSIDES and U. SUNDBERG, Operational Efficiency in Forestry – Volume 2: Practice. Review by J. F. BLYTH 93

D. W. COLE and S. P. GESSELL, Forest Site Evaluation and Long Term Productivity. Review by D. G. PYATT 94

E. G. RICHARDS, R. PLUMTREE and S. WILSON, Wood and Woodworking Tools: A Handbook. Review by JOHN FLETCHER 94

L. C. KUPIER, The Structure of Natural Douglas Fir Forests in Western Washington and Western Oregon. Review by COLIN KENNEDY 95

J. T. BRANDLE, D. L. HINTZ and J. W. STURROCK, Windbreak Technology. Review by R. MILNE 96

J. M. HARRIS, Spiral Grain and Wave Phenomena in Wood Formation. Review by J. D. BRAZIER 97

E. KULA, The Economics of Forestry – Modern Theory and Practice. Review by PAT HARDCASTLE 97

J. A. LARSEN, The Northern Forest Border in Canada and Alaska, Biotic Communities and Ecological Relationships. Review by ROGER LINES 99

W. L. PRITCHETT and R. F. FISHER, Properties and Management of Forest Soils (second edition). Review by DAVID JENKINS 100

L. W. ROBERTS, P. B. GAHAN, R. ALONI, Vascular Differentiation and Plant Growth Regulators. Review by M. P. DENNE 101

C. SKAAR, Wood-Water Relations. Review by J. A. PETTY 102

F. A. VALENTINE, Forest and Crop Biotechnology – Progress and Prospects. Review by D. BIRT 102

Number 2

Notice to Contributors

Productivity of Sitka Spruce in Northern Britain 1. The Effects of Elevation and Climate. R. WORRELL and D. C. MALCOLM 105

Productivity of Sitka Spruce in Northern Britain 2. Prediction from Site Factors. R. WORRELL and D. C. MALCOLM 119

The Influence of Desiccation, Rough Handling and Cold Storage on the Quality and Establishment of Sitka Spruce Planting Stock. J. D. DEANS, C. LUNDBERG, P. M. TABBUSH, M. G. R. CANNELL, L. J. SHEPPARD, and M. B. MURRAY 129

Effects of Establishment Method on Root Form of Lodgepole Pine and Sitka Spruce and on the Production of Adventitious Roots. M. P. COUTTS, C. WALKER, and A. C. BURNAND 143

Urgency Index Ratios: A Simple Tool for Forest Management. S. J. GRAY and C. PRICE 161

Titratable Acids and Bases in Tree and Shrub Leaf Litters. P. J. A. HOWARD and D. M. HOWARD 177

Enhanced Seedling Root Development in Eight Conifer Species Induced by Naphthalene Acetic Acid. D. A. SEABY and C. SELBY 197

REVIEWS

J. K. AGEE and D. R. JOHNSON (eds.) *Ecosystem management for parks and wilderness*. Review by J. SPENCER 209

Y. P. S. BAJAJ (ed.) *Biotechnology in agriculture and Forestry 5 – trees II*. Review by I. R. BROWN 210

R. G. BARRY and R. J. CHORLEY *Atmosphere, weather and climate*, 5th edn. Review by J. B. MONCRIEFF 211

G. BOYD and W. F. HYDE *Forestry sector intervention: the impacts of public regulation on social welfare*. Review by D. PEARCE 212

K. BROAD *Lichens in Southern woodlands*. Review by M. R. D. SEAWARD 214

K. O. CAMPBELL and J. W. BOWYER (eds.) *The scientific basis of modern agriculture*. Review by D. E. COTTON 214

A. GILG (ed.) *International yearbook of rural planning 1988*. Review by N. J. ROOME 215

B. G. HIBBERD *Urban forestry practice*. Review by R. TREGAY 216

N. D. G. JAMES *The forester's companion*. Review by D. McPHILLIMY 216

D. W. JOHNSON and R. I. VAN HOOK (eds.) *Analysis of biogeochemical cycling processes in Walker Branch watershed*. Review by A. J. MOFFAT 218

P. K. KHOSLA (*et al.*) (eds.) *Agroforestry systems: a new challenge* and *Agroforestry for rural needs, Vol. I*. Review by J. B. HALL 219

R. McINTOSH (ed.) *Deer and forestry*. Review by R. D. L. TOLEMAN 219

C. P. MITCHELL (*et al.*) *Establishing and monitoring of large-scale trials of short rotation forestry for energy*. Review by G. D. KEIGHLEY 220

C. P. MITCHELL *Short rotation forestry for energy – single stem plantations*. Review by G. D. KEIGHLEY 221

G. NAMKOONG (*et al.*) *Tree breeding: principles and strategies.* Review by R. ENNOS 222

S. J. PETTY *Goshawks: their status, requirements and management.* Review by I. P. BAINBRIDGE 222

M. A. PRITCHARD (ed.) *A systems approach to forest operations planning and control.* Review by P. KANOWSKI 223

W. G. ROBBINS *Hard times in paradise – Coos Bay, Oregon, 1850–1986.* Review by J. C. HETHERINGTON 224

J. M. VARDAMAN *How to make money growing trees.* Review by R. E. STUMBLES 225

D. R. WILLIAMSON and P. B. LANE *The use of herbicides in the forest.* Review by R. I. JOWETT 226

D. R. WILLIAMSON and W. L. MASON *Forest nursery herbicides.* Review by D. C. HOULDERSHAW 227

NOTICE 228

Number 3

Notice to Contributors

The New Forest, D. J. PERRY 209

Prospects for Enhancing Flowering of Conifers and Broadleaves of Potential Silvicultural Importance in Britain, J. J. PHILIPSON 223

Changes in the Ground Flora of a Broadleaved Wood Within a Clear Fell, Group Fells and a Coppiced Block, K. J. KIRBY 241

Comparison of the Hydrological Budgets and Detailed Hydrological Responses in two Forested Catchments, J. D. MILLER, H. A. ANDERSON, R. C. FERRIER and T. A. B. WALKER 251

The Effect of Intercropping Populus 'RAP' with Beans, O. M. S. H. K. RANASINGHE and G. J. MAYHEAD 271

The Timing of Canopy and Epicormic Shoot Growth in *Quercus robur* L., R. HARMER 279

REVIEWS

J. K. ADAMSON (ed.), Cumbrian woodlands: past present and future. Review by M. ORROM 285

Y. P. S. BAJAJ (ed.), Biotechnology in agriculture and forestry: plant protoplasts and genetic engineering, vols I and II. Review by J. BURLEY 285

R. BUVAT, Ontogeny, cell differentiation and structure in vascular plants. Review by A. R. BERG 287

J. L. CLOUDSLEY-THOMPSON, Woodlands – a nature guide. Review by G. V. DARRAH 288

P. V. ELLEFSON (ed.), Forest resource economics and policy research. Reviewe by A. J. GRAYSON 288

FORESTRY COMMISSION, Provisional code of practice for the use of pesticides in forestry. Review by D. HOULDERSHAW 290

B. A. GARDINER, Mechanical characteristics of Sitka spruce. Review by G. MAYHEAD 290

A. J. GRAYSON (ed.), The 1987 storm: impacts and responses. Review by M. CARROLL 291

P. HAKKILA, Utilisation of residual forest biomass. Review by C. P. MITCHELL 292

T. HAYTER, Exploited earth: Britain's aid and the environment. Review by J. R. FLETCHER 293

J. L. INNES and R. C. BOSWELL, Forest health surveys 1987 Part 2: Analysis and interpretation, and Monitoring of forest condition in the United Kingdom 1988. Review by C. J. LEGG 294

C. J. KING and N. J. FIELDING, Dendroctonus micans in Britain: its biology and control. Review by A. HAYES 295

T. D. LYNCH, The taxation of woodlands in the United Kingdom. Review by D. GITTINS 296

J. D. MATTHEWS, Silvicultural systems. Review by G. MAYHEAD 298

C. P. MITCHELL (ed.), Nutrient relations in short rotation forestry: a compilation of papers, and C. P. MITCHELL (et. al.), Nutrient relations in short rotation forestry: a bibliography. Review by A. J. MOFFAT 299

D. POORE (et al.), No timber without trees: sustainability in the tropical forest. Review by P. G. ADLARD 300

C. PRICE, The theory and application of forest economics. Review by J. A. JOHNSON 302

F. SCHOLZ, (et al.) (eds), Genetic effects of air pollutants in forest tree populations. Review by H. L. BILLINGTON 304

M. SEDGELY and A. R. GRIFFIN, Sexual reproduction in tree crops. Review by J. J. PHILIPSON 305

M. R. SPEIGHT and D. WAINHOUSE, Ecology and management of forest insects. Review by A. J. HAYES 306

B. J. ZOBEL and J. P. VAN BUIJTENEN, Wood variation – its causes and control. Review by R. D. BARNES 307

NOTICES 309

Number 4

Notice to Contributors

Hydrochemical Fluxes and their Effects on Stream Acidity in two Forested Catchments in Central Scotland, J. D. MILLER, H. A. ANDERSON, R. C. FERRIER and T. A. B. WALKER 311

The Impact of Large Herbivores on the Conservation of Semi-Natural Woods in the British Uplands, F. J. G. MITCHELL and K. J. KIRBY 333

A Possible Indicator of Shake in Oak: Relationship Between Flushing Dates and Vessel Sizes, P. S. SAVILL and R. A. MATHER 355

Denitrification from an Upland Forest Site J. DUTCH and P. INESON 363

Economic Prospects for Natural Management of Woodlands in the U.K. M. J. SPILSBURY 379

REVIEWS

S. CARLQUIST, Comparative wood anatomy–systematic, ecological and evolutionary aspects of dicotyledon wood. Review by J. BOLTON 391

R. CHAMBERS (et al.), To the hands of the poor. Review by W. E. S. MUTCH 392

T. R. COX, The park builders – a history of state parks in the Pacific Northwest. Review by R. MINTER 392

N. D. G. JAMES, The arboriculturalist's companion. Review by T. H. R. HALL 393

H. KOOP, Forest dynamics – SILVI–STAR: a comprehensive monitoring system. Review by M. A. PRITCHARD 395

W. L. MASON (et al.) (eds), Producing uniform conifer planting stock Review by A. G. GORDON 395

T. C. MOORE, Biochemistry and physiology of plant hormones (2nd edn). Review by J. J. PHILIPSON 397

P. K. R. NAIR (ed.), Agroforestry systems in the tropics. Review by P. HARDCASTLE 397

J. PERLIN, A forest journey. Review by E. H. M. HARRIS 399

G. F. PETERKEN and H. ALLISON, Woods trees and hedges: a review of changes in the British countryside. Review by R. E. SELMES 399

E. D. SCHULZE (et al.) (eds), Forest decline and air pollution: a study of spruce on acid soils. Review by JOHN L. INNES 400

G. J. WALKER and K. J. KIRBY, Inventories of ancient, long-established and semi-natural woodland for Scotland. Review by GRAHAM HILL 402

J. WESTOBY, Introduction to world forestry. Review by A. B. FIELD 402

NOTICE 404